



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The Peking-Hankow Railway.

ment of several coal fields that will supply the railroad with an excellent quality of fuel.

Although the line extends in part through a very hilly and even mountainous country, there are only two short tunnels, both of them piercing the hills immediately to the south of the Hoang River. There are, however, about 100 steel bridges from 650 to 2,200 feet in length, besides the great bridge over the Hoang River, which is wholly constructed of metal, is nearly 9,900 feet long, and is one of the great bridges of the world.

The abstract of statistics in the Chinese "Returns of Trade" for 1905 says that the work on the prolongation of this railway from Hankow to Canton was deferred until it should be settled who was to construct it and with what funds, but was resumed in March, 1906, under Chinese auspices and with Chinese capital.

GEOGRAPHICAL RECORD.

AFRICA.

THE DUKE OF THE ABRUZZI'S ASCENTS IN THE RUWENZORI RANGE.—The newspaper press announced some time ago that the Duke of the Abruzzi, whose expedition to Mount Ruwenzori sailed from Naples on April 17, had climbed the highest summit in the range, the height of which, however, was not given. A few additional particulars since received show that at last accounts his work was progressing very favourably. On June 18, only two months and a day after his departure from Naples, he had already ascended the highest point of the range, which he found to be 5,800 meters, or 19,024 feet, above sea-level, so that it is probably the second highest summit in Africa, the Kibo peak of Kilimanjaro, with 19,712 feet, being the culminating point of the continent, and Kenia, with 18,105 feet, occupying the third place.

Petermanns Mitteilungen (No. 7, 1906) says the expedition proves how much good work may be done in a short time by a party into whose organization and equipment the question of cost has not entered. Everything that might contribute to the success of the expedition was supplied without stint. The Duke of the Abruzzi is accompanied by Captain Cagni for magnetic and meteorological observations, Dr. Cavalli for geology and botany, Professor Roccati for mineralogy and geology, Vittorio Sella for photography, and Lieut. Winspeare for topographic surveying. In addition to this scientific staff, five experienced mountain guides were taken and 450 native carriers were secured at Entebbe, on the north coast of Victoria Nyanza, to transport the supplies to the foot of the glacier on the eastern slope of Ruwenzori, where the base camp was pitched. Before he climbed the highest peak of the range the Duke ascended a number of the lesser summits. He hoped to complete a good topographical survey of this entire mountain mass before returning home.

SNOW IN THE SAHARA.—The *Bulletin* of the Comité de l'Afrique française reports in its numbers for March and May that last winter was very severe in the Sahara. The courier service was interrupted for many days after Feb. 8 on account of bad weather. Snow fell on Feb. 10 to the south and southwest of Wargla, and on Feb. 5 it snowed at El Golea from 6 A.M. to 3 P.M., and, on the sixth, all day with few interruptions. The depth of the snowfall was four to five centimeters (nearly 2 in.). The northern limit of this snowstorm was El Khoua, and it extended through the region occupied by Fort MacMahon to the Gurara group of oases, its southern limit being near Uakda. On the morning of February 6, the region around Timmimun was covered with three to four centimeters of snow. The oldest inhabitants of El Golea say they never knew snow to fall there before.

BOERS SETTLING IN THE KILIMANJARO-MERU DISTRICT.—The immigration of Boer farmers into this northern part of German East Africa is increasing. The Government requires that each family permitted to take up land must have a capital of about \$2,000, so that the pioneers may begin life in this new region under fairly satisfactory conditions. The immigrants also agree that in case of native uprisings they will assist the Government to restore peace.

In January last 397 immigrants were settled on 126 farms, in the district Iraku, around Mount Meru. Southeast of Arusha, on the slope of Kilimanjaro, another settlement of 300 families is in progress. The Government, believing it is best to assure mixed settlements, reserves areas between the Boer farms, on which German farmers will be established. This policy is especially desirable because most of the Boers are chiefly cattle-raisers, while the Germans are agriculturists, and the mixture of the two elements, it is believed, will give rise to considerable industrial development.

The rapidity with which this elevated and healthful region is filling up with white settlers makes it necessary to hasten the completion of the railroad from Tanga to the neighbourhood of Mount Meru. At present the colonists are using the Uganda railroad in the British East Africa Protectorate, which largely diminishes the length of the land haul. The British hope to keep a part of this transportation trade by building a branch road from Voi station to the German boundary at Kilimanjaro.

THE SEBU RIVER, MOROCCO.—A French expedition in charge of Dr. Samné is reported by the *Annales de Géographie* (No. 81, p. 280) to have made a careful study last year of the navigability of the Sebu River in Morocco. The results were most satisfactory, for the party ascertained that flat-bottom boats will be able to ascend the Sebu for about 130 miles from its estuary, and even at the low-water stage light draft boats will be able to ascend to the neighbourhood of Fez. It is certain that this waterway, which fertilizes the lowest plain in Morocco, offers an excellent route to the interior, and that a number of towns might flourish on its banks. Dr. Samné calls attention to the opportunity to revive the port of Mehdiya, on the left bank of the estuary, which was a prosperous town from the time of the Phœnicians to the heyday of the Portuguese navigators in the sixteenth century. To-day it is merely a small village, three-fourths in ruins, and occupying the centre of a region hostile to Europeans. There is a bar at the mouth of the Sebu; but it is not an insurmountable obstacle, and it may be removed without great expense.

THE EXPEDITION OF LEO FROBENIUS IN THE KASSAI BASIN.—This ethnologist, whose researches have contributed some new ideas as to the origin of African civilizations, has recently been exploring the region of the Kassai, the second largest tributary of the Congo. The results, which he communicated by letter to the Berlin Geographical Society, are summarized in the *Annales de Géographie* (No. 81, p. 284). He was preceded in this region by the German travellers Wissmann, Wolf, Pogge, Kund, and Tappenbeck, but his work renews our knowledge of the tribes in this part of Africa, and he has also completed surveys of the hydrography, where the South African plateau meets the plain of the Congo.

Accompanied by the artist, Hans Martin Lemme, Mr. Frobenius started from Dima, a large trading-point on the Kassai, a little above the confluence of the Kuango, and first studied the tribes of the Kuilu, as far as the falls above Kiknitt. In this region he discovered an entirely unknown river, the Kantcha. Then, returning to the middle Kassai, he methodically studied the region of the great river to above Pogge Falls, and also the lower Lulua, making more or less extended sojourns at Mange, Bena Makima, Mai Munene, Chikassa, and finally reached Luluaburg. He intended to complete his journey by studies along the Lulua and Sankuru rivers.

On the Kassai he surveyed two unknown sections of the river between Pogge and Wissmann Falls. He discovered a new waterfall, much finer than Wissmann Fall. The new fall was named after his companion, Lemme Falls. Under this parallel (approximately 6° S.) the rivers have their "fall line" not less clearly marked than that bordering our Atlantic coastal plain. This fall line marks, in a striking manner, an ethnographical and geographical boundary.

To the north is the forest with scattering trees at first, soon succeeded by dense growths. Here are settled civilizations relatively old, with traces of aboriginal tribes, or, in other words, the oldest that have been found here. These tribes are the Bayansi and the Babunda. To the south large affluents course over the plateau and savanna regions, which conduce to movements of the population. From these southern plateaux numerous invasions of the more northern country have occurred, such as those of the Baluba and Babunda tribes, that founded the great empire of the Muata Yamvo, of which Livingstone told us and which Pogge described. This empire no longer exists, for it was wiped out about twenty years ago by a new tribe, the Kioko. The Bachilangue of Pogge and Wissmann are to-day dispersed, and the Kioko have invaded the low country to the north. Thus the old theory of the advance of African peoples by successive waves coming from the north and east is here contradicted by the facts.

Mr. Frobenius draws attention to the rapid destruction of the cascades by water agency. Everywhere the sandstone faces of the falls are retreating. The appearance of Wissmann Falls, for example, has entirely changed since 1886. A large new section has also formed in Pogge Falls. Mr. Frobenius considers his discoveries as to the origin of Bakuba art and the poetical folklore of the Baluba as of special importance. His work thus far is described in greater detail in the *Zeitschrift* of the Berlin Geographical Society (1905, pp. 467-471; 1906, pp. 114-118 and 426-431).

THE FUTURE OF KATANGA.—Mr. H. Buttgenbach, a mining engineer, who spent two years (1902-1904) in Katanga, the southeast province of the Congo

Free State, has returned to Europe fully convinced that the resources of this region exceed those of any other part of Central Africa. He asserts (*Bulletin de la Soc. Belge d'Études Coloniales*, No. 6, 1906) that European colonization is warranted by the climate of this high plateau. Agriculture may have enormous development on these wide, alluvial plains. Many waterfalls will afford vast water power. The wealth in copper and gold may almost be considered inexhaustible. These prime advantages are certain to make Katanga the country of the future in Central Africa. He believes Katanga to be the richest copper region in the world. Every month new discoveries are being made. Over 120 ore beds have thus far been located, and thirty of them are believed to contain at least 15,000,000 tons of copper at levels not deeper than 130 feet. At the present rate of consumption the copper in these thirty deposits would supply the world for twenty years. Large deposits of tin are found near the navigable reaches of the Lualaba, and the gold discoveries are most encouraging.

NEW AGREEMENT BETWEEN GREAT BRITAIN AND THE CONGO FREE STATE.—The agreement of 1894 between these countries relating to what is known as the Lado Enclave was replaced on May 9 by a new agreement signed at London. King Leopold during his reign will continue to occupy the territory, which shall, however, be handed over to the Sudanese Government within six months of the termination of His Majesty's occupation. The Free State will not permit the construction of any work on or near the Semliki River which might diminish the volume of water entering Lake Albert. A concession will be given to an Anglo-Belgian company for the construction and working of a railway from the frontier of the Free State to the navigable channel of the Nile near Lado. This railway shall be wholly subject to the jurisdiction of the Sudanese Government after the end of King Leopold's reign. The Egyptian Government will guarantee interest of three per cent. on \$40,000,000 required to build the railway. A port open to general commerce shall be established at the Nile terminus of the road. Congolese vessels shall have the right of navigating and trading on the upper Nile, subject to Sudanese laws and regulations.

AGRICULTURE IN FRENCH WEST AFRICA.—Mr. Auguste Chevalier, whose remarkable explorations in the Chad basin are well known, returned to French West Africa last year to find the best place for establishing a large botanical and agricultural station, to inspect somewhat similar establishments already existing, and to study the present trend of tropical agricultural development. This official mission occupied him for nine months. His report is not yet ready for publication, but he has printed some of his conclusions concerning the present agricultural situation in the *Renseignements coloniaux et Documents, Comité de l'Afrique fr.* (XV, Dec. 1905, pp. 485-491). Native agriculture on the Guinea coast, he says, has a hopeful future. The cultivation of the ground-nut in Senegal is already a success and the increasing oil industry in Togo, Dahomey, and the Cameroons shows that the black population on this coast can be induced to work.

The great results already attained in the cultivation of cacao at St. Thomas and on the Gold Coast justify the conclusion that this industry will have enormous growth in West Africa. Fifty years ago the cacao tree was almost unknown in Africa. Its cultivation was begun at St. Thomas about 1850. At present St. Thomas and Principe islands are producing over 50,000,000 pounds

a year, valued at more than \$6,000,000. The Portuguese are very proud of this brilliant history and call it the greatest material success yet realized in West Africa. It is possible that the British Gold Coast, however, will surpass the Portuguese islands. The Gold Coast is now exporting cacao, though not a cacao tree was to be found there in 1885. To-day the region is producing about 11,500,000 pounds a year, worth about \$1,000,000. All the work on these Gold Coast plantations is done by natives, and they own the plantations. There is not a single European plantation devoted to this crop.

COTTON IN GERMAN AFRICA.—The Kolonial-Wirtschaftliches Komitee has issued its seventh report on the German cotton experiments in the colonies (*Der Tropenpflanzer*, No. 6, 1906), in which it says that, although the Togo cotton crop in 1905 suffered from unusual drought, 257,500 pounds, valued at 150,000 marks, were exported. Colonial cotton can never compete in the world's markets with the present sources of supply until the hoe culture of the natives is replaced by the plough. Experiments thus far in Togo and other German colonies show that the natives under European tuition learn quickly how to handle the plough and to drive draft animals. Both horses and oxen have demonstrated their usefulness in Togo. In East Africa the harvest was delayed and the crop impaired by the native uprising, though 650 bales of 500 pounds each, worth over 200,000 marks, were finally obtained. Cattle disease has thus far prevented the successful introduction of the plough into this colony. The prospects in the Cameroons are encouraging in certain districts, and also in the northern part of German Southwest Africa. The transportation problem, however, is a serious one in all the colonies. Cotton cannot pay high freight rates, and until railroads are developed there can be no large expansion of colonial cotton-growing.

AMERICA.

MINERAL PRODUCTIONS OF NEW YORK IN 1905.—The New York State Museum gives in *Bulletin* 102 a report on "The Mining and Quarry Industry of New York State" in 1905. The mineral resources of this State are the basis of rapidly-growing industries. About thirty materials are now commercially exploited, and the aggregate value of the output last year was \$34,663,553. Nearly one-third in value of the whole production is building brick, which were produced last year to the amount of \$10,054,597, of which about four-fifths came from the Hudson River region. The limestone, quarried both for building stone and for making Portland and natural cements, was worth \$2,411,456. The iron ore product was 827,049 long tons, worth \$2,192,689, the progress of this industry being one of the most notable features of the year; 8,575,649 barrels of rock and brine salt, worth \$2,303,067, were produced, a considerable part of the salt being used for the manufacture of soda products. The combined value of the petroleum and natural gas was \$2,173,931. The other largest products were sandstone, mineral waters, pottery, Portland cement (\$2,046,864), and natural rock cement (\$1,590,689).

PROFESSOR HEILPRIN AT MONT PELÉ.—Professor Angelo Heilprin, who visited Martinique in February, writes in *Science* (No. 601) that the Pelé obelisk now exists only in its basal wreck, in the jagged crest which still protrudes from the summit of the supporting dome, and in a wilderness of débris composed of

small and giant fragments. All doubts as to the character of the rock mass which built up the monolith may probably now be considered removed. The rock is a compact light gray and virtually holocrystalline hypersthene-andesite, devoid of vesicles or of any vesicular or obsidian-like structure, and having a fine-grained base. Professor Heilprin sees no reason to change his view that the monolith represented an ancient plug or core that had been lifted up in the manner of the giant granite mass of the Puy Chopine, of the Auvergne. Pelé was not in activity in the early part of this year and, to all appearances, had no participation in the events associated with the earthquakes in St. Lucia and Martinique on Feb. 16. The dome in its upper parts is still quietly disengaging vapour.

A GAZETTEER OF COLORADO.—This is the sixteenth of Mr. Gannett's useful gazetteers of the States and Territories. It contains 185 pp. and is *Bulletin* 291 of the U. S. Geological Survey publications. The Hayden Survey published a topographical and geological atlas of the State which, in later years, had potent influence in its development. The total area mapped by the present Survey is about 38,000 square miles, or considerably more than one-third of the State.

THE SALTON SINK.—The U. S. Geological Survey has issued a topographical map of the parts of California and Mexico occupied by the great depression in the Colorado Desert known as the Salton Sink. The map is called the Salton Sink Special, and it shows on a scale of about 8 miles to an inch all the principal towns, roads, canals, and drainage lines. This region has been considerably discussed in the newspapers recently, owing to the threatened formation of a large lake where there is now a thriving community.

About 8,000 people settled in that part of the basin known as the Imperial Valley are raising excellent crops of barley and alfalfa. Stock farms are numerous, and experiments in raising the date-palm are in progress. The freight shipments from Imperial, a town only four years old, rival those of Los Angeles in value, and are said to exceed those of any other town in Southern California.

The existence of this community is, however, seriously endangered by the Colorado River, which is also the source of all its prosperity, as this stream furnishes water for the irrigation system. The absence of any controlling work at the head of the main canal has resulted in diverting the river from its old channel and permitting the entire flood-flow to enter the irrigating system. This is causing great damage to the ditches and crops, and is forming a large lake, which now covers about 250 square miles, at the lowest part of the Sink. The Southern Pacific Railroad has been obliged to rebuild many miles of tracks.

A NEW MAP OF GUATEMALA.—Mr. H. Prowe writes to *Globus* (No. 19, Vol. 89) from Guatemala that the civil engineer Claudio Urrutia has made a new map of that country on a scale of 1:100,000, or 1.5 statute miles to an inch, which, though the triangulation of the republic is not yet achieved, is based in most respects upon scientifically-ascertained data. A number of the maps used in the compilation, for example, were based upon astronomically-fixed positions, the boundaries upon boundary surveys, and the compiler was also assisted by Carl Sapper's surveys in the interior of the country, the studies by American engineers for the inter-continental railroad, the hydrographic coast charts, etc. Urrutia's special contribution is his delineation of the roads, his

city plans, and the boundaries of the landed estates as on a cadastral map. With the assistance of Francisco Vela he has also inserted about 1,000 contours of elevation. The map, which has been prepared with the support of the Government, is to be reduced to a scale of 1:300,000 and published.

RAILWAYS IN COLOMBIA.—The plan for the reorganization of Colombia, devised by General Reyes, is now being carried out. It includes large railway development, and the money to build some of the railways is already assured by foreign companies which have large investments in the republic. The concessions recently granted will tend ultimately to place the capital Bogotá in rail communication with both oceans. The lines already contracted for to the west of Bogotá represent about one-fourth of the distance between the capital and the Pacific port of Buenaventura. A number of links in the line to the Atlantic are also under contract.—(Condensed from the *Bulletin* of the Inter. Bureau of the American Republics, June, 1906.)

MUSEO DE LA PLATA.—Samuel A. Lafone Quevedo has been appointed Director of this Museum to fill the vacancy caused by the retirement of Dr. F. P. Moreno. By a law recently passed the Museum has been made a Faculty of Natural Science as a constituent part of the National University of La Plata, lately created. The different sections have been grouped in schools as follows: 1°, Geological; 2°, Biological; 3°, Anthropological; 4°, Geographical; 5°, Chemical.

PROFILE ACROSS SOUTH AMERICA.—The *Boletín* of the Lima Geographical Society (Vol. 15, No. 3) prints a large section across South America from Mollendo, Peru, to Pará, on the Atlantic side. The vertical scale is largely exaggerated to emphasize the irregularities of form in the section across the Andes. The horizontal scale across the Cordilleras is also exaggerated to give room for the names of heights and depressions among the mountains. The water-parting between the Atlantic and Pacific along this section is at Aguas Calientes, 3,975 meters (13,000 feet) above sea-level and 640 kilometers (400 miles) from the Pacific.

EXECUTIVE ORDER.—The official title of the United States Board on Geographic Names is changed to "United States Geographic Board." In addition to its present duties, advisory powers are hereby granted to this Board concerning the preparation of maps compiled, or to be compiled, in the various bureaus and offices of the Government, with a special view to the avoidance of unnecessary duplications of work; and for the unification and improvement of the scales of maps, of the symbols and conventions used upon them, and of the methods of representing relief. Hereafter all such projects as are of importance shall be submitted to this Board for advice before being undertaken.

THEODORE ROOSEVELT.

The White House, August 10, 1906.

ASIA.

THE REFORM MOVEMENT IN CHINA.—Periodicals dealing with Chinese affairs are constantly publishing evidence of the progress of the reform movement. Here are a few facts taken from a recent Consular Report and from the *Mitteilungen* of the East Swiss Geog. Comm. Soc. (No. 2, 1905):

U. S. Consul Anderson writes from Amoy that the authority to confer de-

grees upon scholars has now been vested in the University at Peking and in the colleges which the Government will establish in each province. The Government in 1903 appointed a Commission of three high officials to study the whole question of education. The result of its report is that a Board of Education has been established in Peking to decide upon methods of introducing Western education and a school system of different grades. The old literary examinations have been abolished by Imperial edict.

A Commission of high officials has been sent to Europe to study the workings of constitutional government. The practice of foot-binding has been forbidden in a number of the provinces. The Chinese press is spreading new and modern ideas among the people. A daily paper has been started in Peking with the title "Women's Newspaper," which is already widely distributed. Progress and reform are the burden of every page. Here are the titles of some of the articles that appeared in this journal within a few days: "The Absurdity of Fortune Telling," "Torture to Extort Confessions must be Abolished," "Proof that the World is Round and that it Moves," "Care of Children," "Kind Treatment of Animals," "Evils of Opium Smoking," "Appeal for the Formation of an Anti-Opium League," "Love of the Fatherland." Only a few years ago the official Peking *Gazette* was the only newspaper in Chinese, but to-day newspapers for the common people are multiplying, and they bring all kinds of questions to public attention. About 3,000 miles of railroads are now in operation, and concessions have been granted for the building of some thousands of miles more.

THE BARRETT EXPEDITION TO CENTRAL ASIA.—Mr. Ellsworth Huntington returned home in May from Chinese Turkestan. Information about the earlier part of the work of Mr. L. R. Barrett and Mr. Huntington has already appeared in the BULLETIN (1906, p. 236). Mr. Huntington was a member of Mr. Barrett's expedition until September, 1905, after which he worked independently. He is now engaged in writing an account of Central Asian geography and experiences. His work concluded with an examination of the Lop Nor region. His party travelled for four days on approaching this lake over a great salt plain covered with hard deposits of salt. It is evidently the site of an old lake-bed. A journey was then made over an older lake floor, red in colour, and glistening with crystals of gypsum. The whole country was absolutely desert, and was exceedingly cold, the temperature dropping at night several degrees below zero, Fahrenheit, more than forty degrees of frost being registered. From Lop Nor the party proceeded by a new route across the Kuruk Tagh Mountains to Karashar, from which place a visit was made to the Turfan depression.

TOPOGRAPHICAL MAP OF NEPAL.—The Survey of India Report for 1903-4, which has just been issued, contains the only topographical map of Nepal yet published. It shows the conformation of the mountains in a wide section of the Himalayan system. The *Geographical Journal* (Aug., 1906) says that this map is the work of Captain Wood, who was the first English surveyor permitted to take observations in Nepal. The map sets at rest the disputes which have arisen about the position of Mount Everest, proving the peak to be far removed from others which have been confounded with it and placing them all in their true relative positions. It also indicates that the great snowy

range of the Central Himalaya (sometimes mistakenly called the Indian watershed) possesses no continuity through the width of Nepal from west to east. The group of mountains of which Everest forms the centre and the contiguous group dominated by the peak known as Gaurisankar, at any rate, form no part of it. The position of certain passes leading into Tibet north of Katmandu may now be located with a fair approximation to exactness. It is probable that Mount Everest is higher by 140 feet than the height (29,000 feet) at present assigned to it, and that we shall eventually find that Kanchinjanga and not K² (Godwin Austen) holds the second place.

TIBETAN CARPETS.—The *Indian Trade Journal*, quoting from Mr. P. Landon, says that at Little Gobshi there is the finest rug factory in Tibet. Mr. Landon found a large two-story house, with a courtyard, entirely filled with the looms of men and women workers. The patterns used are native Tibetan, and the colours are excellently blended and rich in themselves. It is difficult for Tibetan weavers to make a piece of stuff wider than about thirty inches, because their looms are of a primitive description; nor do they attempt to make a pattern larger than can be contained upon a single width. The plain orange and maroon rugs are made in narrow strips and sewn together to any desired width, but this is not done with the figured cloths. When the eye is once taught to recognise the difference the cheaper rugs (worth about 3 rupees) are easily seen to be inferior from every point of view to those which the makers will not sell for less than 25 rupees. The entire annual output of this Tibetan factory is about 500 rugs.

SURVEYS AND MAPS OF THE PHILIPPINES.—Mr. H. D. McCaskey, chief of the Philippine Mining Bureau, in his Report for the year ending Aug. 31, 1905, says that the present maps of the Philippines are very inadequate. Development is embarrassed by the almost total lack of topographic data for railway, high-road, and other surveys. There are no topographic maps on which to base mineral, forestry, agricultural, and other industrial surveys of importance. At present, special topographic surveys must be made for each project carried out upon scales suited to the special work involved, and therefore not necessarily in harmony with other scales used. This work is not a total loss, but it is not in accordance with the highest cartographic or economic demands. It is a more serious matter that no primary triangulation of the islands has been made from which a skeleton frame may be constructed upon which secondary or tertiary triangulation maps and accompanying topographic data may be fitted as fast as secured. The great need is a primary geodetic triangulation, which must be made sooner or later, as a fixed basis for all future Philippine survey work. It could be made under the direction of the Bureau of the Coast and Geodetic Survey as a proper extension inland of its excellent astronomic work. The public land surveys, including surveys of mining claims, are in actual need of triangulated base maps, and without them serious trouble concerning boundaries will arise. Surveys are now being made to fill present needs by the military and civil governments over limited areas.

DIFFICULTIES OF GEOLOGICAL EXPLORATION IN THE PHILIPPINES.—The Report of the Philippine Commission for 1905 mentions some of the difficulties that have combined to check mineral exploration and development in the islands. Geological exploration and field prospecting are hindered by the obstacles imposed by the

luxuriant forest and jungle growths and the excessive thickness of soil overlying rock formations. The number of intelligent prospectors and miners is still small, the United States are at a great distance, and it is consequently difficult to secure capital, and the somewhat uncertain future of the islands also tends to cripple enterprise. The result is that large portions of the islands have not been explored by prospectors even to the present day.

GROWTH OF INDUSTRIES IN JAPANESE VILLAGES.—The *Transactions* of the Asiatic Society of Japan (Vol. 32, Part 2) says that a very notable change has come over many Japanese villages, owing to the immense increase of industries established throughout the country since the close of the war with China. This is not only the case in districts where the production and manufacture of silk have always been important. In purely agricultural districts—in Saitama Ken, for example—cotton-spinning and weaving industries have been largely developed. All over this district are small factories employing from fifteen to twenty hands at spinning or weaving coarse cotton cloth. Most of the workpeople are women.

MR. GEIL'S NEXT JOURNEY.—Mr. William E. Geil, who has recently returned from a five years' journey around the world, studying native races and observing missionary operations, will sail from the Pacific coast in December for the purpose of following the Great Wall of China to the Province of Kansu, whence he will take a northerly course across the desert of Gobi, a part of his route being over unexplored ground. In China, he will keep to the south of the Wall. He will make an instrumental survey of his route through the desert, whence he will probably go north to Siberia. He is already experienced in Chinese travel, and his last journey there was from Shanghai up the Yangtse to Yunnan-fu and Bhamo in Burma.

EUROPE.

GEOGRAPHY AT GÖTTINGEN UNIVERSITY.—It will interest many teachers of geography to read the following extract from a letter written to a friend in this city by a young American who began, with the summer semester, the geographical course at Göttingen under Professor Wagner. The student is taking all the geography given in this semester, which includes mathematical geography four hours a week; the cartographical course, Part 2 (map interpretation), 2 hours a week; geographical exercises, three times a week; geographical colloquium, with papers by the various participants and discussion, three times a week; and geography of the Mediterranean countries, twice a week. Professor Wagner conducts the entire programme excepting the lectures on Mediterranean countries, which are by Dr. Friederichsen. The writer says:

All of the courses are full to overflowing. Professor Wagner is very popular even with non-geographers. In the geographical exercises I received the problem of drawing the cross sections of the North American continent where it is traversed by the parallels of 30°, 35°, 40°, 45°, 50° N., or, in other words, 5 profiles to the scale of 1:10,000,000, the vertical scale being exaggerated 100 times. I finished four of the profiles and they show remarkably clearly the high altitudes west of 100° W. in contrast with the cis-Mississippian country. I am also to determine, with the planimeter, the area of these cross sections, then the length of the land portions of the parallels and finally the mean altitudes of the continent. This gives you an idea of the work I am doing. I find it very interesting. In the cartographical course, we are beginning with copying to the same scale as the original. In the exercises I had a paper to write on coral islands, this subject having been chosen for me on account of my knowledge of English in view of the English writings on the subject.

CAVE EXPLORATION.—The latest issue of *Spelunca* is a double number (Nos. 42 and 43), completing the review by Mr. E. A. Martel of the caves of the world, to which No. 1 of Vol. 6 of this publication was devoted (BULLETIN, 1905, p. 671). The whole work is a summary of what has been done in cave exploration thus far in the twentieth century, the first part being reserved to the caves of France, while the concluding part deals with the caves of the rest of Europe, Africa, America, Asia, and Oceania. The whole will make a volume of 450 pp. The information is drawn from numerous sources, and the work is practically a complete bibliography and record of recent activity in this line of exploration. France has a far larger share (194 pp.) than any other country, 197 pp. being given to the rest of Europe, about 24 to Africa, 22 to America, 7 to Asia, and 5 to Australia and Oceania. Many items are merely bibliographical notices of papers that have appeared, usually in the scientific periodicals. A very large number of caves is mentioned, and the newly-discovered features are described. The results of Mr. Martel's laborious task cannot fail to be very helpful to students of this phase of physical geography.

Grottoes and caverns are used, more or less, as shelters by primitive peoples, and thus inhabited caves are, of course, most frequent in Africa. A considerable number of natives make their home in caves along the southern shore of the Strait of Gibraltar, and in some of these caves are found the polished stones and arrowheads of the Stone age. Troglodyte villages are frequent in the Tebessa territory of Algeria, one of which, at Djeurf, 250 feet above the gorge of the Wadi Hallail, is reached by steps cut in the rock. The inhabitants of the Tunisian Island of Galite are cave-dwellers, their habitations being grottoes which they have dug out of the limestone, or ancient burial caverns that they have enlarged. The subterranean villages of Matmata and of Medenine, hewn out of the rock, are in southern Tunisia. A Christian monastery, built under ground in the twelfth century, still exists at Goba, Abyssinia. The explorer Chevalier found many troglodytes to the north of Baguirmi. The enormous cavern discovered several years ago, within two hours' walk of the port of Tanga in German East Africa, contains rooms whose roofs are from 120 to 250 feet above the floor. Only a few of these vast chambers have yet been explored, for the entire cavern seems to be inhabited by millions of bats. One of these, killed with a stick, measured nearly five feet across its extended wings. The stories about the grottoes of Katanga, Congo Free State, which were said to have been dug by the natives as dwelling-places, are now declared to have no other foundation than the fact that the natives often retire to openings in the dolomitic rock which serve as places of refuge from their enemies. Many troglodytes are living in caverns in British East Africa to the north of Mount Kenia.

LA RIVISTA COLONIALE.—The Istituto Coloniale Italiano has issued the first number of a monthly with this title (May, 1906). It is a handsomely-printed magazine of 172 pp., and is the largest of the several colonial publications now appearing in Italy. The purpose of this new publication is to keep the public fully informed of colonial affairs, in the expectation that a study of colonial questions and the interests of the colonies will thus be stimulated, to the advantage of the colonies, of the motherland, and of Italian colonists who go to foreign countries. The first number contains papers on Italy since the conference at Algeciras, the organization of the agricultural-colonial service, the antiquities of Tripoli and

Cyrenaica, the colonial expansion of Italy, the United States and Italian emigration, the commerce of Eritrea and the Ethiopian markets, the finances of northern Italian Somaliland, colonial information, book reviews, etc.

INDEX TO THE GEOGRAPHICAL JOURNAL.—It will interest all geographers to know from the last annual address of the President of the Royal Geographical Society (*Geog. Jour.*, July, 1906) that a general index to the first twenty volumes of the *Geographical Journal* is about ready for publication. It will form a volume of about 600 pages in double columns. The notices of geographical literature and maps in the *Journal* are more complete than in any other publication except in the *Bibliotheca Geographica* of the Berlin Geographical Society, and the new index will be invaluable for purposes of reference to all workers in the subjects to which it relates. It is gratifying, also, to learn that the general index to the fourteen volumes of the earlier *Proceedings* of the Royal Geographical Society is also well advanced.

EROSION OF THE BRITISH COASTS.—A Royal Commission has been appointed to consider questions relating to the erosion of the British and Irish coasts. The Commission is to report as to the encroachments of the sea on various parts of the coasts, the damage which has been or is likely to be caused thereby, the measures that are desirable for the prevention of such damage, and whether further facilities are needed for the reclamation of tidal lands.

THE GERMAN STATISTICAL YEAR BOOK.—The twenty-seventh issue of the *Statistisches Jahrbuch für das Deutsche Reich*, published by the Imperial Statistical Office, is just received. As usual, this summary of about 400 pages is a fine example of classification, arrangement, and clearness. Statistics in these volumes are easy to find and inaccuracies rarely occur. For some statistical purposes the quarto volumes issued four times a year by the German Statistical Office are essential, but this annual summary, though lacking the details of the larger publication, is adequate for most purposes, and may be consulted more easily than the larger work. The issue for 1906 contains about fifty pages of comparative statistics of the world, the annual being a source to which writers on the comparative statistics of the nations often go for information. The comparative tables this year number 31, some of them covering a number of pages, and are fine examples of the tabulated statistics of the leading countries relating to their area, population, products, manufactures, transportation, communications, commerce, finances, etc.

OCEANIA.

GEOLOGY OF THE NEW HEBRIDES.—Mr. D. Mawson, Lecturer in Mineralogy at the University of Adelaide, spent six months of 1903 studying the geology of the New Hebrides, including the Banks and Torres groups to the north. On account of the extreme hostility of the natives and the prevalence in many places of malaria of an acute type, this group long remained a *terra incognita*. It was not until Missions were established in comparatively recent years that accurate knowledge of the geography and natural features was obtained. Geological knowledge of the islands was still very limited, and Mr. Mawson had before him an almost virgin field. The report he has written is published, with a number of fine photographs and a map, in the *Proceedings* of the Linnean Society of New South Wales for 1905, Part III., pp. 400-484.

Among the facts which attracted Mr. Mawson's attention were the great importance of volcanoes and volcanic material in the formation of the islands, and the arrangement of the volcanoes in definite directions. He also noted the immense size of many of the Pliocene and recent craters. He found that the chain of islands owed its existence primarily to the development during Miocene times of a fold-ridge, apparently a continuation of that which passes around the north of New Guinea through Sumatra, and on to the Himalayas. The folding period was preceded by local, shallow marine conditions, and the folding force seems to have been exerted from the direction of Fiji against the New Caledonia crystalline schists and gneisses to the west. A single ridge probably resulted, defining the western line of islands where extensive outcrops of Miocene strata are exposed.

Then a faulting of the inner wing of the fold occurred letting down the sea-floor to the east, and thus putting fairly deep water between the New Hebrides and the Fiji land surfaces. Large volcanoes were developed along this fracture, and the eruptions, beginning probably about middle Pliocene, have extended down to recent times. During all this period of volcanic activity extensive submarine tufaceous beds were accumulating above the folded Miocene series. No interbedded coral limestone is found among these tuffs. Capping these series are the raised coral reefs, elevated to heights of over 2,000 feet. The oldest of these is referred to a period not earlier than late Pliocene and probably not much later, as it has since been intruded upon by lavas from centres now extinct. If the New Hebrides ridge, at any time, formed continuous land connected with other land-masses, these conditions most likely prevailed in its early history.

The discovery that the New Hebrides are a fold-chain of Alpine age throws light upon our knowledge of South Pacific geology. It is apparent that the South Pacific island groups are lined along these great fold-chains concentric on the Australian land-mass. The fact that the land areas are not continuous is due to cross-faulting, the insufficient elevation of many ridges to rise above sea-level, and other causes.

The work of the industrious coral polyp has resulted in the development of three main types of islands: (1) In regions of continuous upheaval islands are veneered with coralliferous limestone terraces—*e. g.*, The New Hebrides; (2) islands situated on subsiding areas are typical atolls—*e. g.*, The Ellice group; (3) the third type of island is one in which coralliferous limestone is interbedded with submarine tuffs or other material, being evidence both of upheaval and subsidence. Such areas are, as a rule, larger land-masses, such as Viti Levu, and have been affected by oscillatory movements of the earth crust and by folding of the acute type defining most of the South Sea Island ridges.

POLAR.

PROGRESS OF THE ANGLO-AMERICAN POLAR EXPEDITION.—The BULLETIN (June, p. 382-84) announced the departure of the expedition led by Captain Ejnar Mikkelsen and Mr. Ernest de K. Leffingwell from Victoria, B. C., on May 20 in the schooner *Duchess of Bedford* for their field of work among the Western Parry Islands and their neighbourhood. Letters since received from Captain Mikkelsen say that the party spent a number of days on Kadiak Island, but did not see any bears during their sojourn. The course was then shaped for the Siberian coast to purchase dogs. Returning to the Alaskan coast, Port Clarence, a little south of Bering Strait, was reached about July 20. Dr. George P. Howe, the surgeon of

the expedition, here came to the conclusion that Mr. E. Ditlevsen, naturalist and artist, was physically incapacitated for further service, and it was accordingly thought necessary to send him, as well as one of the sailors, back home.

On July 22 the *Duchess of Bedford* left Port Clarence, passed through Bering Strait, and on the 24th, in spite of strong head winds, reached Cape Hope, where the party was stormbound for four days. From that time they were considerably retarded by adverse winds, fog, and the presence of much Arctic ice along the coast. Leaving Cape Hope on July 29, Capt. Mikkelsen writes:

The wind compelled us to take a true northerly course, and we struck the ice on Aug. 1 in Lat. $70^{\circ} 30' N$. We followed up the pack, and on Aug. 2 came to land at Icy Cape, and had to put in two days at that point to give the ice a chance to clear away.

The schooner reached Point Belcher on Aug. 9, but from that time to Aug. 13 there was continual gale and fog. They finally broke out of the ice at noon on the 13th, and sailed in fairly open water to Point Barrow, the most northern point of the American mainland, only to find that the passage to the east of that place was not yet open.

The opening of the season along the Arctic coast of Alaska has, in fact, been very unfavourable. The winds have been light and persistent from the north, preventing the ice from clearing off the coast. None of the whaling vessels that were frozen in, last fall, east of Point Barrow, had put in an appearance at that place when Mikkelsen reached it. When he wrote, however, the barometer indicated a southerly wind, which would probably mean the opening up of the ice and a chance to pass east and make a fair advance before the season closed about the middle of September.

These conditions appear to have been fulfilled. When Mikkelsen wrote from Point Barrow on Aug. 18 he said that no news had yet been received from Amundsen; but we know now that Amundsen has since passed Point Barrow and through Bering Strait. The unfavourable season has rendered it problematical whether the party will be able to reach the destination in Minto Inlet, on the west coast of Prince Albert Land, where it had hoped to make its winter quarters; but if not, everything possible will be done to turn the winter to good account in collecting, surveying, and obtaining soundings offshore.

OBITUARY.

We regret to record the death on the 19th of July of Don Manuel Urbina y Altamirano, Chief of the Department of Natural History in the Museo Nacional, Mexico, and formerly Director *ad interim* of the Museum.

THE GEOGRAPHICAL SOCIETY OF TŌKYŌ sends information of the death of Viscount Moriyoshi Nagaoka, Vice-President of the Society and its principal founder.